Middle Arkansas River Subbasin Newsletter
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Subbasin Water Resource Management
Program

KANSAS DEPARTMENT OF AGRICULTURE
DIVISION OF WATER RESOURCES

MIDDLE ARKANSAS SUBBASIN NEWSLETTER

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Inside this issue:

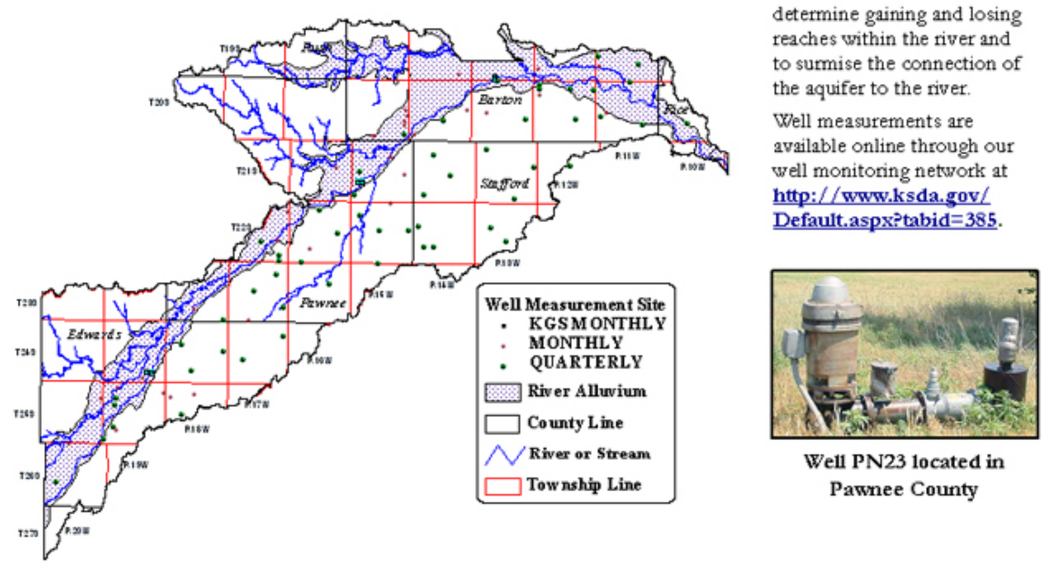
Middle Arkansas Well Monitoring Network

The Kansas Department of Agriculture's Division of Water Resources conducts monthly and quarterly well measurements on 94 wells throughout the middle Arkansas River subbasin. Constant observation of water levels is essential to understand fluctuations that occur throughout the year.

Wells measured quarterly are used to analyze aquifer dynamics within a seasonal range. During the growing season, variations in water levels can take place around areas of intense ground water pumping. Historical records from these observation wells can indicate long-term stability or decline.

Wells measured monthly are located near the Arkansas River system. The measurements from those wells are used to analyze stream-aquifer interaction.

The Division of Water Resources and Kansas Geological Survey maintain transect wells in conjunction with the United States Geological Survey stream gaging sites at Kinsley, Larned and Great Bend to research the stream-aquifer interaction along the Arkansas River. Those wells are equipped with pressure transducers that collect real-time water level measurements at these sites along the Arkansas River. Data sets are used to help determine gaining and losing reaches within the river and to surmise the connection of the aquifer to the river.



Well measurements are available online through our well monitoring network at http://www.ksda.gov/Default.aspx?tabid=385.

Well PN23 located in Pawnee County

109 SW 9th Street, Topeka KS 66612 (785) 296-3705 www.KSDA.gov

A true conservationist is a man who knows that the world is not given by his fathers, but borrowed from his children.- John James Audubon

Water Plan Projects Initiative

By Hank Ernst, Kansas Water Office

Water projects that will make short-term and long-term differences in the lives of Kansans are ready to be put into action by the state's water agencies and partners. The Water Plan Projects Initiative sets out projects to conserve and extend the life of the Ogallala-High Plains aquifer, protect and restore Kansas watersheds, ensure coordinated water infrastructure development and trim debt for water storage in federal reservoirs.

"We must act now if we want to assure future generations of the luxury of abundant water and natural resources we now enjoy," says Steve Irsik of Ingalls, chair of the Kansas Water Authority. The Water Plan Projects Initiative addresses 13 water resource issues and will be financed through the State Water Plan Fund, contingent on its restoration to its authorized funding level.

The Ogallala-High Plains aquifer initiative is designed to conserve and extend the life of the aquifer through management by aquifer subunits, so that management decisions can be made for local conditions. An incentive-based pilot program, the Irrigation Transition Assistance Program, would provide grants to irrigators who voluntarily convert to non-irrigated land use in high-priority, water-short areas. The 2004 Kansas Legislature enacted legislation that allows the purchase of water rights and their permanent dismissal. The State Conservation Commission is charged with developing and implementing the pilot program.

A related project is control of invasive salt cedars and other non-native vegetation in the stream corridors that rob the aquifer of valuable recharge water. Another is development of irrigation management plans that will reduce the salt and selenium levels of Arkansas River water in Colorado and, in turn, Kansas.

The State Water Plan's Watershed Protection and Restoration Strategy, or WRAPS, is a process designed to bring together members of the watershed community to identify watershed needs and goals, develop cost-effective strategies and put them into action. Flood control, wildlife habitat and recreation complement water quality as WRAPS' goals.

The regional public water supply strategy initiative looks broadly at Kansans' drinking water needs. Strategies are being developed to make the best shared use of limited resources. It may mean voluntary system interconnections, voluntary water district boundary adjustments, shared treatment facilities, shared accounting or water district mergers.

Funding for the projects will come from the State Water Plan fund. Unfortunately, it has been tapped since the beginning to pay for projects once funded by the state general fund. The Kansas Water Authority recommends that the state start to reverse that trend this legislative session by restoring the demand transfer to the state water plan fund from the state general fund and returning two programs – aid to conservation districts and stream gaging – to the state general fund balance sheet. The total increased funding for these projects, $3.8 million, would be made available without increasing fees or taxes.

The Kansas Water Authority is a 24-member board made up of gubernatorial and legislative appointees representing various water interests. It provides advice to the governor and members of the Legislature on water policy.

For more information on the Water Plan Projects Initiative, check out www.kwo.org on the Internet, or call the Kansas Water Office at (785) 296-3185. "Water—Your Resource for Life."

If you prefer not to receive this newsletter in the future, please contact Eve Tracy at (785) 296-3705 or etracy@kda.state.ks.us.

Strip-Till Tillage Program

By Richard Wenstrom, Water Protection Association of Central Kansas

Water Protection Association of Central Kansas is promoting tillage practices such as strip-till as a way to conserve water. Strip-till is a relatively new tillage program in central and west-central Kansas, used primarily on irrigated row crops such as corn, soybeans, grain sorghum and cotton. The strip-till machine is normally set up to do the strip till tillage on 30 inch rows. As the machine is drawn through the field, a coulter cuts through existing residue and residue managers behind the coulter sweep the residue to each side, baring a narrow 6-inch strip of soil. An injector knife located behind the residue mangers is used to inject fertilizer in the soil at a depth of 6 to 12 inches, and finally a firming device to the rear of the knives closes and packs the slot to prevent fertilizer from escaping and to prepare the seed bed. When the strip-till operation is complete, narrow strips of bare soil on 30-inch centers can be seen through the field, with residue still in place between the rows. Benefits of strip-till systems include:

- Cultivating and row crop tillage during the growing season is eliminated, keeping the soil from losing moisture during the growing season and allowing fuel savings.
- Good stand of plants is ensured since planting is into bare soil instead of planting in heavy residue, which a good stand is critical for irrigated producers.
- Optimum fertilizer placement is achieved, with a concentrated band of fertilizer 6 to 12 inches directly below the plants, plus a starter can be put down by the planter to get the plants off to a good start.
- Tractor fuel savings; fewer trips through the field than conventional tillage systems.
- Less soil compaction; fewer trips over the field with heavy equipment.
- Residue mulch in between rows decreases evaporation and helps retain water from rain and irrigation.
- Infiltration of water into the soil is enhanced greatly since there is mostly residue and very little tilled soil.
- Wind erosion is virtually eliminated.
- There may be cost-share from EQIP funds for first-time users of the tillage technique.
- Irrigation water use can be decreased at least 1.2 inch in a season or more depending on former tillage system.
- Yields have increased in many cases compared to conventional tillage systems.
- Labor cost can decrease due to fewer tractor hours per season.
- Root systems and root penetration have been enhanced, according to research conducted by the USDA's NRCS in eastern Colorado.

Challenges to producers who convert to strip-till:

- There is a learning curve in the new field operations work.
- Have to sell unused machinery to recoup machinery benefits.
- There is an initial capital cost for a strip-till machine.
- Weed control challenge for the first two or three years.
- EQIP funding, $10/acre, may not be realized by applicants.

Example of Strip-Till

Strip-till offers a chance for producers to reduce their costs and save precious irrigation water. Producers will have to look at the potential and make their decisions based on their individual circumstances.

"Plans to protect air and water, wilderness and wildlife are in fact plans to protect man." Stewart Udall